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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/602,037	06/23/2000	James R. Bortolini	Bortolini 20-13-87-4-27	9055

7590 11/12/2004

Harold C Moore
Maginot Addison & Moore
Bank One Center/Tower
111 Monument Circle Suite 3000
Indianapolis, IN 46204

EXAMINER

LEO, LEONARD R

ART UNIT PAPER NUMBER

3753

DATE MAILED: 11/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/602,037	BORTOLINI ET AL.	
	Examiner	Art Unit	
	Leonard R. Leo	3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-10,17-20 and 24-27 is/are pending in the application.
- 4a) Of the above claim(s) 6-9,17 and 24-27 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-20 is/are allowed.
- 6) ☒ Claim(s) 1, 3-5 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

The amendment filed on August 20, 2004 has been entered. Claim 2 is cancelled, claims 1, 3-10, 17-20 and 24-27 are pending, and claims 6-9, 17 and 24-27 remain withdrawn.

Regarding claim 6, in light of applicant's remarks, the claim reads on the nonelected species of Figure 8A.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 3 and 10 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 and 10 of U.S. Patent No. 6,304,447 in view of Heady et al.

The patent claims all the claimed limitations of the application except an electromechanical actuator.

Heady et al discloses an electronic assembly comprising a substrate 220 with components 245; and a circulating fluid via electromechanical actuator 150 for the purpose of improving heat exchange.

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Since the patent and Heady et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Heady et al would have been recognized in the pertinent art of the patent.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in the patent an electromechanical actuator for the purpose of improving heat exchange as recognized by Heady et al.

Claims 4-5 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 and 10 of U.S. Patent No. 6,304,447 in view of Heady et al as applied to claims 1, 3 and 10 above, and further in view of Murphy et al.

The combined teachings of the patent and Heady et al lacks a piezoelectric actuator.

Murphy et al discloses a fan comprising a rigid blade 12 and piezoelectric actuator 20 for the purpose of optimizing space and power requirements.

Since the patent and Murphy et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Murphy et al would have been recognized in the pertinent art of the patent.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in the patent a piezoelectric actuator for the purpose of optimizing space and power requirements as recognized by Murphy et al.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill

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in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heady et al in view of Rohner.

Heady et al discloses all the claimed limitations except liquid as the working fluid.

Rohner discloses an electronic assembly comprising a substrate 12 with components 10; and a circulating liquid 44 via pump 32 for the purpose of improving heat exchange.

Since Heady et al and Rohner are both from the same field of endeavor and/or analogous art, the purpose disclosed by Rohner would have been recognized in the pertinent art of Heady et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Heady et al a circulating liquid for the purpose of improving heat exchange as recognized by Rohner.

Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heady et al in view of Rohner as applied to claims 11-13, 18 and 20 above, and further in view of Murphy et al, as applied in the double patenting rejection above.

Allowable Subject Matter

Claims 18-20 are allowed.

Response to Arguments

The objection to claims 3 and 6 are withdrawn. The Examiner agrees claim 6 is different in scope than claim 18. Claim 6 reads on the nonelected species of Figure 8A.

In response to applicant's argument that Heady et al discloses an electromechanical actuator for air, not a liquid, the test for obviousness is not whether the features of a secondary

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reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this instance, U.S Patent No. 6,304,447 claims liquid circulating within the compartment. The secondary reference of Heady et al teaches one of ordinary skill in the art to employ an electromechanical actuator to pump the cooling fluid for the purpose of improving heat exchange. The Examiner agrees it is ridiculous to employ a fan suited for air to pump a liquid. However, the skill level of the heat exchange art is not obtuse. One of ordinary skill in the art would employ a proper motive device for the desired working fluid, gas or liquid.

It is a fundamental thermodynamic concept that forced convective heat transfer is better than natural convective heat transfer. The patent functions based on natural convection of the cooling fluid, i.e. liquid to circulate within the compartment. Heady et al functions based on forced convection of the cooling fluid, i.e. air by a fan to circulate within the compartment. Thus, one of ordinary skill in the art would employ forced convection via a suitable pumping means to circulate the cooling fluid. The Examiner employs the term "fluid" to describe the cooling medium. In thermodynamics, fluids are both liquids and gases, where the fundamental equations employ compressive variables due the nature of the respective fluid. Convection relates to heat transfer of motive fluids, both gases and liquid.

With respect to the rejection in view of Murphy, Murphy teaches one of ordinary skill in the art to employ a piezoelectric actuator for the purpose of optimizing space and power

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requirements. As demonstrated by the prior art of record, piezoelectric actuators or pumps are used in both gas and liquid environments.

In response to applicant's argument that Rohner discloses an external pump for liquid, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this instance, Heady et al discloses the fan (i.e. air pump) is internal of the compartment. To employ an external pump as proposed by applicant would destroy the reference of Heady et al. The secondary reference of Rohner merely teaches one of ordinary skill in the art to employ a circulating liquid via pump for the purpose of improving heat exchange. Clearly, Rohner discloses liquids are compatible for cooling electronic device within compartments. The associated pump 32 provides circulation of the cooling fluid to improve convective heat transfer.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

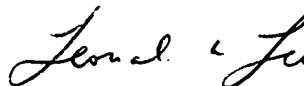
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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is 703-308-2611. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on 703-308-2696. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


LEONARD R. LEO
PRIMARY EXAMINER
ART UNIT 3753

November 8, 2004